SECTION 1 - INTRODUCTION AND HISTORICAL ANALYSIS

Xagħra rises on a hill in the central north-east of Gozo. Its name is Maltese for a wilderness, referring to the state of the hill before it was inhabited. The village is known world-wide because of the Ġgantija Temples, the construction of which began some 5,600 years ago. About half a kilometre to the north of the Temples, on Triq il-Qaċċa, there is the Gozo Stone Circle, the underground cemetry of the Temple builders. The legendary Calypso cave is on the outskirts of this village.

Xagħra's Parish church is dedicated to the Nativity of the Virgin Mary, locally known as Il-Vitorja, the Blessed Virgin Mary of Victories, as it was on 8 September 1565, Mary's birthday, that the Knights and the Maltese succeeded to overcome a much larger Turkish army and to free Malta and southern Europe from the Islamic onslaught.

The Parish of Xagħra was established by Bishop Cocco-Palmieri on 28 April 1688. The Parish was originally sited in the chapel of Saint Anthony the Abbot in the same village. But the people, at the request of the Bishop, began building a new church in the centre of the village on public land donated by Fra Gregorio Carafa, the Grand Master of the Order of Saint John. By May 1692, the new church was functioning. This church was dedicated to the Blessed Virgin Mary, first under the title of Graces and, time later, to her Nativity. The population of Ix-Xagħra continued to grow and the church soon became too small. At the beginning of the nineteenth century, the Gozitan priest-architect Dun Salv Bondi prepared a plan for its enlargement. The foundation stone was laid on 2 October 1815 but, due to lack of funds, its building came to a halt. Its facade and interior reflect the baroque features common to most churches of these islands. Construction was concluded in the early 1850s due to a generous contribution by the Parish priest Dun Mikiel Buttigieg, later elected as the first bishop of Gozo. The church was blessed on 14 February 1855. It was eventually solemnly consecrated by Bishop Pietru Pace on 26 May 1878. The dome was raised in 1892 on a design by another priest-architect Dun Ġużepp Diacono, who was also Parish priest. The Parish was raised to Archipresbyteral status on 11 March 1893. The fourth Collegiate of Gozo was established at Xagħra on 17 March 1900. The title of Basilica was conferred on the Parish on 26 August 1967.

The Xagħra Church parvis is a very popular meeting spot for both locals and visitors. This is true both during special religious occasions, such as the village feast, Christmas and Easter, and also in the day-to-day life. After each mass, especially on Sundays, people gather on the parvis to chat and catch up with the latest news and gossip. During the rest of the day, given that the square is open to traffic and is quite a busy square, the church parvis naturally becomes the 'safe' pedestrian area where one can meet up for a chat. Therefore the church parvis is a very important spot in the social life of the village.

The aim of this project is to underline the historical and architectural value of this feature and restore it through approved and recognised techniques.

SECTION 2 - APPRAISAL, ASSESSMENT AND EVALUATION

2.1 Description and appraisal

The church parvis was set out and built following the completion of the church. It is symmetrical in shape with a wide flight of steps leading to the main square along the axis. Given that the square is slightly sloped, there is a flight of 4 steps leading to the parvis on the North side and a small ramp leading from the street to the parvis on the South Side. The parvis is bounded by a balustrade interspaced with low stone pilasters. Old photos show that stone finials used to be found on each pilasters (refer to Photos 29 and 30). These have since been removed, but one of them is still intact and a photo of it is attached to this report (Photo 28). The balusters were originally made of stone but were then replaced with concrete ones. The sottobank and soprabank are still the original stone ones. Two statues are found on the two central pilasters. These statues are painted in white. The present concrete tiling was placed relatively recently.

2.2 Current state of conservation and identification of deterioration (refer to photographic survey at Annex 1, cross-referenced to DWG02)

The parvis is not in a good state of repair. It is evident that the structure below the balustrade is not sound enough, given that there is substantial settlement in the balustrade and pilasters. The concrete tiling is in a very sorry state and has since been patched in several places where the tiles became detached or broken. The concrete tiling on the main steps has also been patched in various places.

The existing ramp leading to the parvis is not according to Access for All guidelines and needs to be redesigned to become accessible for all.

The present lighting system consists of two green poles found on two of the pilasters, together with two floodlights attached to nearby private properties.

The main causes of deterioration to the original stone elements (the concrete balusters and tiling are being disregarded given that they are relatively recent and will be replaced) are the following:

- intrinsic properties (durability of the stone and its properties)

- exposure/orientation (joints washing out, pollution caused by traffic)

- structural problems (it is evident that the structure has settled)

- lack of maintenance (open joints and cracks)

- human interventions and accretions (inappropriate use of cement and renders, insensitive repairs, neglect)

It is being proposed to carry out restoration of the church parvis, balustrade and 2 statues. More specifically, the following interventions are being proposed:

a. Restoration of soprabank and sottobank. The existing patina will be retained, and restoration envisaged will consist of superficial cleaning, the removal of cement and other foreign renderings where present, and the plastic repair of alveoli and fissures with a lime based mortar.
b. Careful removal of existing metal railings located at the pilasters flanking the side stairs, taking care not to damage the pilasters, and their replacement with brushed stainless steel railings with proper dimensions for ease of use.
c. Removal of the existing concrete balusters which replace the original which were made of stone, and installation of exact replicas made of good quality globigerina limestone.
d. Installation of replicas of original finials which existed originally (refer to old photos submitted and to photo of one finial which is still extant) and which match the finials installed on the bell towers. To be carved out of good quality globigerina limestone.
e. Replacing of one pilaster which is made up of small stone blocks with new solid pilaster made of good quality globigerina limestone, an exact replica of the original pilaster.
f. Replacing of the existing concrete tiling with natural stone paving as per drawings.
g. Repaving of main stairway and side stairway with natural stone, retaining existing moulding shape.
h. Construction of a new ramp according to Access for All guidelines.

i. Removal of the two cast iron poles, which will be transferred to the entrance to the new cemetery at Xaghra.
j. Installation of a new lighting system to replace the existing two light poles.
k. Restoration and conservation works on the two existing statues of St Anna and St Joachim.

2.3 State of Deterioration

The deterioration mechanisms visually identified are:

- Biological patina
- Differential erosion
- Cement repairs

Biological patina

Biological patina is a thin, soft and smooth layer adhering to the surface that varies in colour. It is composed mainly of microorganisms that can adhere to dust, dirt, etc. The presence of microorganisms on materials in small quantities is not necessarily harmful and gives a certain agreeable-looking patina to the stonework. It however becomes hazardous when external conditions favour their development.

Among the conditions that promote bio-deterioration, are:

- A higher than normal moisture content;
- Environmental conditions such as temperature and relative humidity;
- The formation of mineral salts in the materials;
- The nature of some organic substances in the materials.
- This is found mostly on the top of structures.

Differential erosion

The principal cause of differential deterioration is the combined mechanism of the presence of soluble salts and a wet-dry cycle which favours the migration of salts to the stone surface. Internal stresses build up just a few millimetres from the stone surface and because the stone is weak in tension, failure of the material occurs. This build-up of internal pressure

within the pore structure is due to the drying of crystals in solution which is being transported to the surface. Left untreated, the deterioration of the stonework through the action of salt crystallization is progressive. Every time a small layer of stone shears away from the rest of the fabric, a larger surface area is created, facilitating even further the process by which the stone can absorb more water and salts hence increasing in the process the rate of deterioration. Due to the intrinsic properties of the stone the rate of deterioration might not occur homogenously on the stone, hence the term differential deterioration.

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Cement repairs

Cement renders applied on various areas of the stonework have a three-fold contribution to the deterioration of the masonry fabric. In the initial stage of its application the cement render constitutes an important source of salts. In the presence of water, these salts are free to migrate into the pores of the old limestone onto which the cement plaster has been applied. The eventual hardening of the cement render forms a very rigid vapour barrier, impeding the drying of rising damp, and shifting this natural process to other areas of the structure, the salt crystallization process migrating to other areas of the elevation. The distinct properties of thermal expansion of the cement render together with the acidic solution contribute to the disintegration of the stone fabric.

SECTION 3 – PLANNING & BRIEFING

3.1 Restoration Philosophy/Methodology

As part of the philosophy of the proposal, the consideration of the design process adopted a sensitive approach towards the structure itself in its context. The rehabilitation of the structure comprises the restoration, preservation and maintenance of the structure.

The restoration philosophy adopted is to preserve as much as possible whilst maintaining the historic fabric in good condition. When considering the stone fabric in general, the patina of the stone shall be maintained as much as possible. Recent accretions which do not add to the value of the parvis (such as the balusters and the cement tiles) and stones that are severely deteriorated or that are structurally unstable shall be replaced. Any soiling and black crust shall be cleaned, as described in this document, cement renders removed, and delaminated stonework shall be consolidated.

3.2 Planning and mapping of interventions - Interventions on the stone fabric

The restoration/conservation interventions aim to:

a) Address the previous interventions or repairs that may be causing more damage to the stone (such as cement and other renders).

b) Address the flaky paint on the statues.

c) Restore the dirty, damaged or deteriorated stonework.

d) Clean the stone fabric whilst retaining the patina

Removal of additions/accretions

Care shall be taken to remove all metallic inserts, (especially iron and steel fixings) from the stonework. Corroding metal fixings shall be carefully cut so as to cause the least possible

disturbance to the surrounding masonry; the associated rust debris shall also be carefully removed.

Resulting holes shall be filled-in using a suitable lime-based mortar when the break is small or by piecing-in stone, if the gap is large, as per Architect's instructions following an inspection with Architect.

Removal of cement renders/lime wash renders

Where identified by the Architect, concrete, previous cement repairs and cement renders shall be carefully removed by hand tools using manual methods so as to contain damage to the underlying masonry work.

Electrical tools as well as tipped metallic instruments with sharp edges or corners, power tools (such as rotating disk cleaners) and sand blasting (dry or wet) shall not be permitted.

Rake out Joints

Power tools may not be used for the removal of renders, mortars and opening of joints unless explicitly requested in writing by the Architect. Hand held tools are to be used.

Cleaning: General Considerations

The cleaning method adopted should, as far as possible;

• Be effective in removing the deleterious substances from the stone surface.

• Not produce any substances which will encourage any future deterioration of the stone.

• Be slow enough such as to allow good control by the operator.

• Must not cause any micro-fractures or any other discontinuities of the stone surface, as these may initiate or encourage new deterioration processes.

Abrasives, chemicals, or high pressure water jetting will not be permitted. The process must ensure that no over saturation and softening of the stone occurs. In those areas where this

system is not sufficient to reach the required level of cleanliness, controlled micro-blasting on non-decorative areas may be considered. Systems adopting sand, gravel, or water blasting techniques will not be considered.

Micro-blasting systems used shall be such as to function effectively at low pressure, and use low quantities of water. The abrasive material used shall be calcium carbonate having size and configuration which will not damage the surface texture of the stone fabric.

The aim of the cleaning exercise should primarily be that of cleaning the face of the stone and removing all accumulation of carbon, sulphurous compounds, and other contaminants, but should retain the patina of time. On completion of works, the stone is to be brought to its natural patina, texture and profile. All discoloration is to be removed from the face of the stone. No original carved relief arises or surface textures are to be damaged or altered. It is important that any water used throughout the cleaning operation be free from salts. No chemical agents will be permitted. The use of tap water will NOT be permitted.

Brushing by Hand

Prior to commencing any cleaning method, the conservator/restorer shall remove loosely adhered deposits and growths using suitable corrosion resistant brushes and micro scalpels that do not damage the stone surface.

The use of brushes with steel bristles shall not be permitted. Nylon brushes will be preferred. Carefully dry brush, one section at a time, using a stiff bristle/nylon brush, dirt from stonework and lime renders to be retained. Care should be taken to ensure that no damage is caused to friable, delaminated stonework. If so deemed necessary such areas shall be pre-consolidated adopting procedures outlined hereunder.

Water cleaning by hand held systems

General cleaning shall be carried out by means of low pressure washing (less than 2 bar) using and hand held mineral/nylon fibre brushes as directed and approved by the Architect. Tap water shall not be used. Stubborn deposits shall be removed first. Softened deposits

shall be removed with suitable brushes that do not damage the surface. Any debris shall be thoroughly rinsed.

Cleaning of Organic Growth

Surface soiling, by organic growth, shall be initially removed by simple dry bristle knife blades and spatulas, provided that the substrate is sound enough, without damaging or abrading the surface and as approved by the Architect. If the surface below the growth is delicate or liable to be marked or scoured in any way, this process will not be carried out.

Replacement of Deteriorated Masonry

Every effort shall be made to retain as much as possible of the original masonry structure. To this effect no stone shall be replaced without the prior approval of the Architect.

Stone replacement will be limited to individual badly deteriorated stone blocks and the total number of stone replaced shall be kept to the minimum possible.

All new stone work used shall be similar in material, colour, size and configuration to the original and shall match with the existing course height.

Recording Profiles

Measurements shall be taken from existing masonry units, identified by the Architect, to allow replacements to be matched accurately.

Profile gauges shall ideally be used to record existing profiles within the site. Alternatively profiles may be recorded on site by tracing the existing profile on cardboard or any suitable material.

Replaced Stonework

Only new stonework, machine cut to a true shape (ikkartabunat) and hand finished shall be used unless otherwise directed by the Architect.

The new masonry elements will be inspected to ensure that they are not damaged, chipped, soiled, stained or contaminated by salts and/or other deleterious substances. Non-hydraulic mortar (lime based) shall be used unless otherwise specified by the Architect. The mortar bed shall not be less than 12mm thick.

Laying of Replaced Masonry

Joint surfaces shall be dampened to control suction as necessary. The units shall be laid on a full bed of mortar and all joints filled. Care shall be taken to ensure that no mortar/grout encroaches upon exposed the faces.

The new stone shall be dampened to avoid risk of de-watering mortar. All faces, angles and features shall be carefully aligned and set out to ensure satisfactory joint widths and relative positioning with existing masonry. The exposed faces of new material shall be kept to the face lines as agreed with the Architect.

Repointing Joints

Grout mix shall be based on lime, fine coralline and globigerina limestone sand (xahx).

The grout shall be kept back from the exposed face to allow for the depth of pointing specified; this shall be achieved using an approved temporary sealing material. The grout must not stain the exposed face.

It is only after the work has settled-in that pointing of the replaced masonry shall be carried out. The pointing of the outer 25mm (as a minimum) shall be left until all bedding work has settled.

Plastic Repair

Plastic repair as specified in this document shall be used in areas indicated by the Architect.

• Any deteriorated, flaking, powdering masonry shall be carefully removed to expose a sound background. In the process care shall be taken not to weaken the structure or damage the adjacent masonry.

• The top and vertical edges of the repair area shall be undercut to provide sufficient bonding and reduce the formation of visible shrinkage joints.

• The plastic repair mortar shall be based on a lime binder and it can be premixed.

• Aggregates used shall vary from coralline sand, to marble and globigerina limestone sand (xahx) to pozzolanic additives, as agreed with the Architect.

• The mixes shall approximate a 1:3 binder to aggregate ratio. In the mortar preparation, the Contractor shall ensure that the grains of sand and stone dust are adequately coated with the binder paste.

• Slaked lime shall be used as a binder, with the putty mixed wet with the aggregate and stored in an airtight container as far in advance as possible.

• Hydraulic lime may be used to substitute completely the slaked lime.

• The mortar shall be built up in layers where necessary, each layer not exceeding 12mm.

• The finishing coat shall match the existing surfaces and approved sample/s.

• The repair mortar will not stronger than the adjacent fabric.

• When plastic repair is used to fill alveoli then the extent of filling shall be determined on site by the Architect and shall reflect the physiognomy of the deteriorated masonry fabric.

All plastic repair shall be formed such as to match the adjoining stonework in colour, texture and final profile.

Epoxy Resin Injection (to be applied to cracked pilaster near side ramp)

Epoxy resins as specified in this document, having suitable characteristics and viscosity, shall be used for the injection, under pressure, of cracked masonry sections previously consolidated.

The epoxy resin used shall be a solvent-free resin-based product supplied in two packs (resin + hardener), having a low viscosity, and certified by manufacturer to suitably fill cracks in the region of 1mm or more as so required. The resin shall be certified by manufacturer to have a suitable bonding to masonry, be colourless (or have a stone colour), be resistant to chemicals, and have an effective adhesion even on moist masonry surfaces. The material shall be easily injected into the crack structure using proprietary methods and tools, including suitably sized non-return injection valves.

It shall have a compressive strength greater than 60N/mm^2 than 30N/mm^2.

All masonry surfaces to be treated with epoxy resins shall be clean, free from any loose material, greasy substances, etc. Cracks should be superficially sealed with an epoxy resin having suitable viscosity, and proprietary injection nozzles fixed. Following the injection of the epoxy resin, and after allowing sufficient time to ensure that the structural stability of the delaminated or otherwise masonry structure is restored, the masonry is carefully cleaned from the superficial epoxy resin applied previously to seal cracks.

Bonded Dowels

Samples/ method statements for the use of stainless steel, glass reinforced or carbon fibre dowels used in conjunction with polyester or epoxy resin adhesives shall be obtained prior to commencement of any works.

Suitably sized holes shall be drilled to receive dowels and adhesive. The holes shall be aligned to allow accurate positioning of the replacement/insert and deep enough to allow for sound anchorage.

The holes shall be cleaned, all dust removed and adequately flushed with water; adequate drying time shall be allowed. Smaller holes may also be cleaned by blowing out with a small tube.

The dowels shall be secured into clean, dry holes with adhesive. No adhesive shall be used to bond stones at joints unless agreed otherwise with the Architect. The pins shall be cut to size prior to the injection of the resin and shall not be closer than 6mm to the surface for small diameters and 12mm for large diameters. The resulting holes shall then be filled with matching mortar.

Application of transparent veiling coat (velatura)

Where application of velatura is required, as per directions by the Architect, the velatura mix is made up of the following ratios:

- 3 – 5 % of total water added to be slaked lime
- water
- colour additives

The samples should be shown to the Architect and it is only when the latter approves of the mix can this be applied.

Interventions on statues

Cleaning tests will first be carried out on a small portion of one of the statues. Surface cleaning of the surface paint to an approved level will be carried out. Any detached paint and old repairs will be removed carefully using hand tools. Mortar reconstruction with conservation grade materials will be carried out where necessary. Reconstruction of the surface coating will finally be effected

Other works

Other works which will be carried out through this project, such as the laying of new paving and underlying concrete ground slab and the installation of new lighting) will be carried out taking care not to cause any form of damage to the old fabric.

3.4 Monitoring

All works shall be monitored by qualified monitors should this be considered necessary and if so, monitors shall be notified in due time, prior to commencement of works.

3.5 Documentation

A photographic record of the parvis and other elements in their existing condition at the time of the writing of this report can be found here under. All works carried out, especially works which shall be hidden shall be documented periodically.

Annex 1 – Photographic Survey

Photo 1 - Statues of St Anna and St Joachim

Photo 2 - Concrete tiles patched with concrete

Photo 3 - Concrete tiles patched with concrete

Photo 4 - Concrete tiles patched with concrete

Photo 5 - Detail of sottobank

Photo 6 - Detail of sottobank

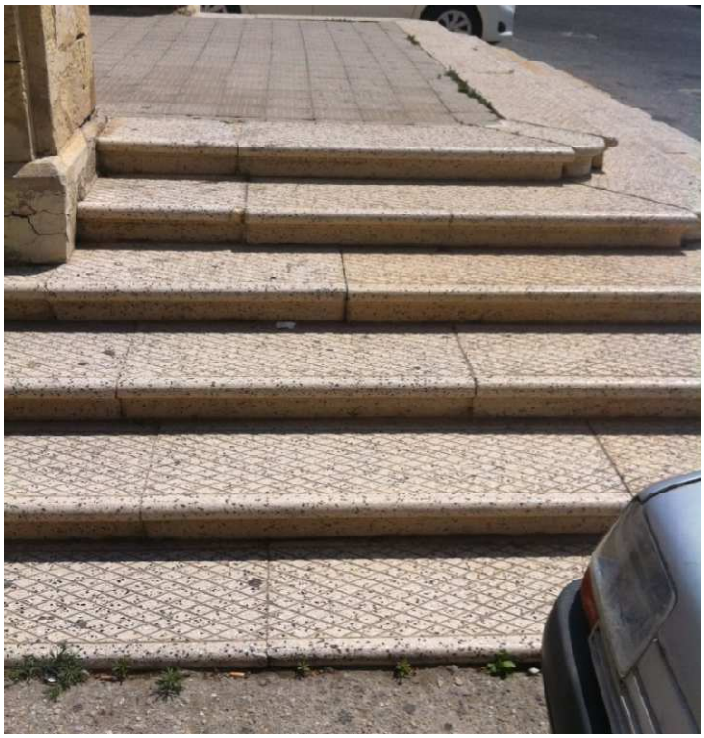

Photo 7 - Side of main stairs

Photo 8 - Detail of stairs

Photo 9 - Detail of stairs

Photo 10 - Detail of stairs

Photo 11 - Right hand side of balustrade

Photo 12 - Internal view of right hand side of balustrade

Photo 13 - Detail of soprabank

Photo 14 - Detail of soprabank

Photo 15 - Existing access ramp

Photo 16 - Pilaster to be replaced as it is not original and is made of three blocks of stone

Photo 17 - Pilaster to be replaced as it is not original and is made of three blocks of stone

Photo 18 - Original hardstone step to be retained in place

Photo 19 – Part of balustrade on North Side

Photo 20 – Part of balustrade – Note hacked pilaster to receive cement rendering

Photo 21 – Part of balustrade – Note cement rendering on pilaster

Photo 22 – Part of balustrade

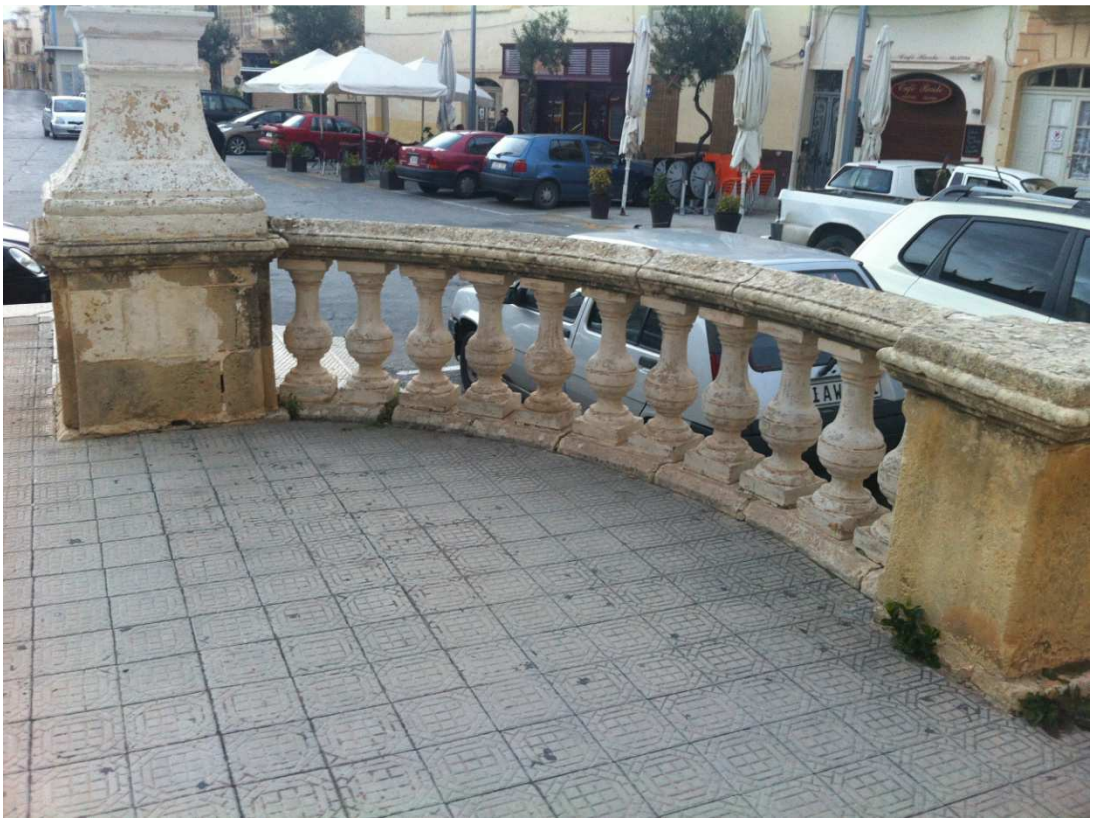

Photo 23 – Part of balustrade and back elevation of pilaster below statue

Photo 24 – Part of balustrade and back elevation of pilaster below statue

Photo 25 – Part of balustrade and back elevation of pilaster lamp post

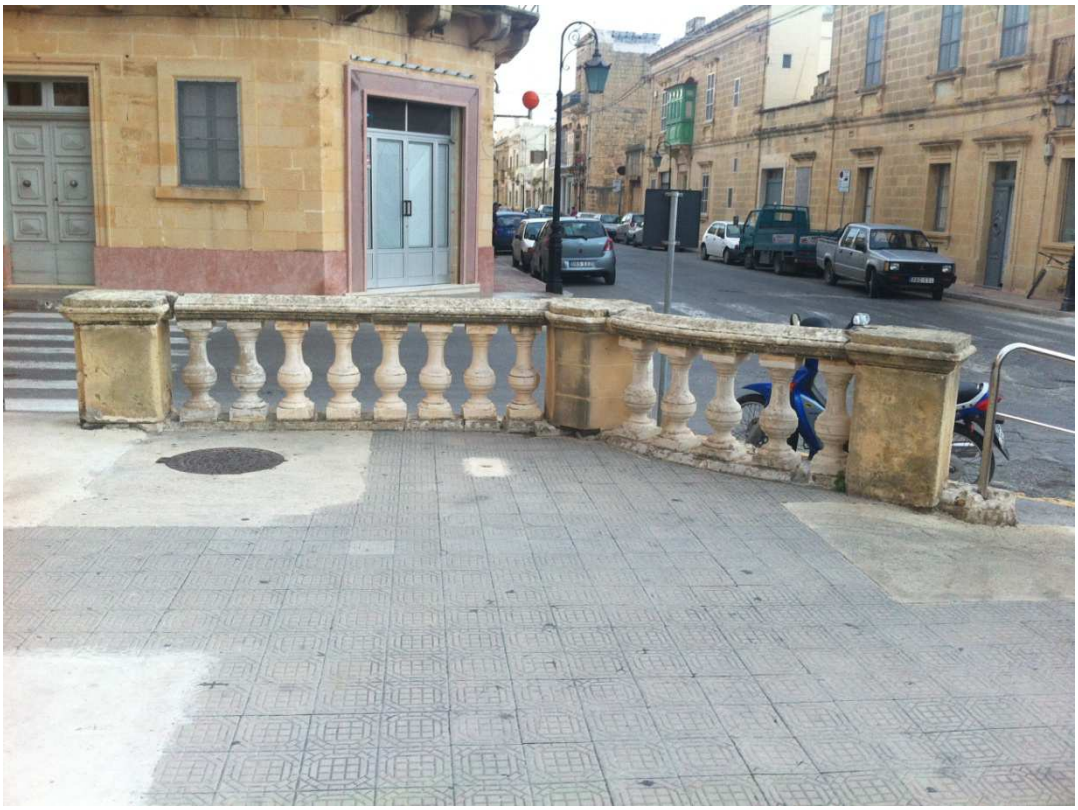

Photo 26 – Part of facing South – Note recent pilaster built out of small stone blocks

Photo 27 – Part of balustrade facing South – note the cracked pilaster

Photo 28 – One of the original finials

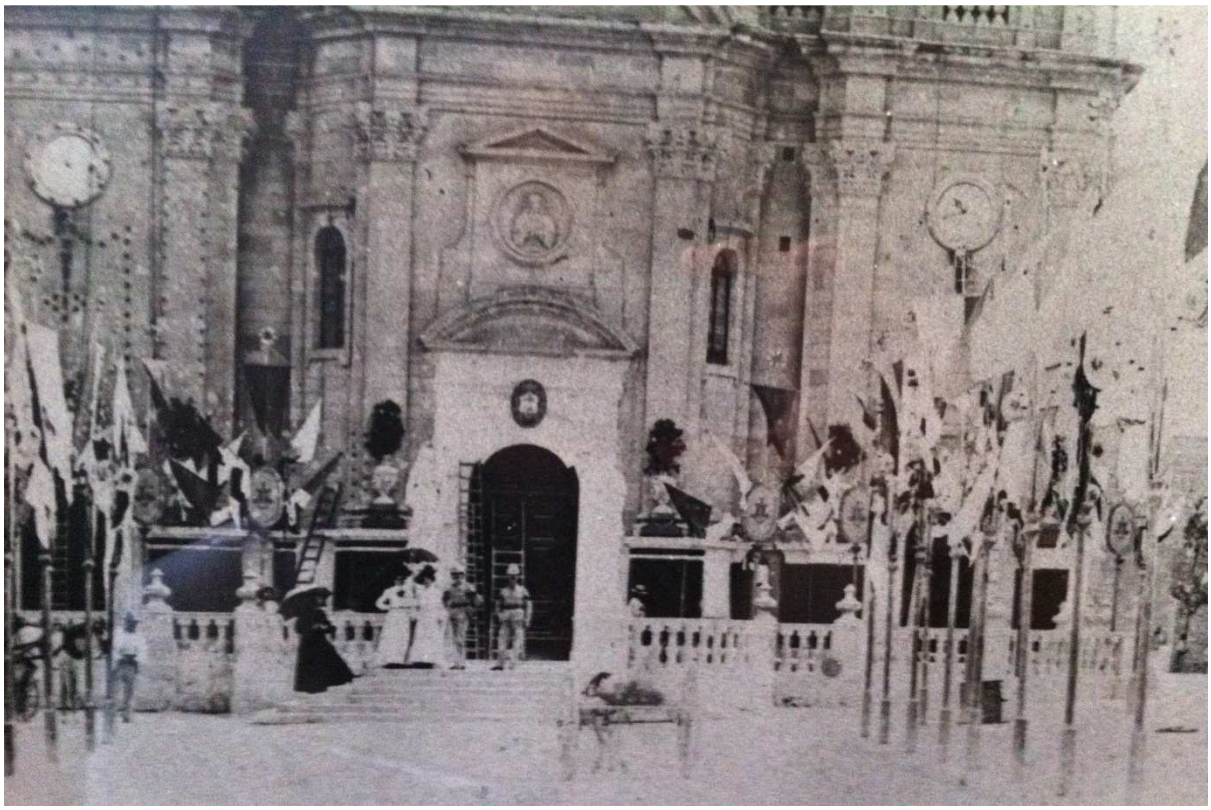

Photo 29 – Old photo of parvis

Photo 30 – Old photo of parvis